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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,570	07/21/2006	Robert W. Morris	30004-004US1	2103

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OCCHIUTI ROHLICEK & TSAO, LLP
10 FAWCETT STREET
CAMBRIDGE, MA 02138

EXAMINER	
BORSETTI, GREG	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
04/13/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

Office Action Summary	Application No.	Applicant(s)	
	10/565,570	MORRIS, ROBERT W.	
	Examiner	Art Unit	
	GREG A. BORSETTI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1-19 are pending.

2. Claims 1-2, 4-5, 8-13, 16-18 have been amended.

3. Claim 19 has been added.

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/4/2009 has been entered.

Response to Arguments

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Chou does not provide an suggestion or disclosure of a detect key-phrase or subword sequence being a "spoken even of interest to be located in unknown speech." Remarks, Pages 7-8, ¶ 4 and ¶ 1) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are

not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Foote does not specify the form of the "desired query words." Foote provides no hint or disclosure that the "desired query words" to be located in the phone lattice are provided in a spoken form. (Remarks, Page 8, ¶ 2)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

7. In response to applicant's argument that "one of ordinary skill in the art would not have been motivated to combine the teachings of Chou, which are directed to speech utterance understanding with the teachings of Foote which are directed to audio information retrieval" (Remarks, Page 9, ¶ 1), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

8. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Further, even if the Chou system is modified to include the audio information retrieval...the resultant system still does not perform the recited functions of … (Remarks, Page 9, ¶ 1)) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1, 2, 4, 8, 10, 11, 17, 18, and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The term "specification" is not defined in the specification as for an individual to understand the metes and bounds of the claim language.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-3, 5-16, and 18-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

11. As per claims 1-3, 5-16 under the most recent interpretation of the Interim Guidelines regarding 35 U.S.C.101, a method claim must (1) be tied to another statutory class or (2) transform underlying subject matter to a different state or thing. If no transformation occurs, the claim(s) should positively recite the other statutory class to which it is tied to qualify as a statutory process under 35 U.S.C. 101. As for guidance to areas of statutory subject matter, see 35 U.S.C. 101 Interim Guidelines (with emphasis of the Clarification of "processes" under 35 USC 101); As an example, the claim(s) could identify the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed. As per the independent claim 1, the method may be interpreted as a human performing the methods of mentally defining an spoken event using subword units and recognizing the location of the events in an audio signal. Dependent claims 2-3, 5-16 fail to tie the method to a statutory apparatus.

12. Claims 18-19 are also non-statutory under the most recent interpretation of the Interim Guidelines regarding 35 U.S.C.101 because although this claim comprises "system" type elements, these elements are disclosed in the specification (Page 11, ¶ 059) as a software embodiment, and when treated as a whole, the claims are more toward a non-statutory embodiment and not necessarily a hardware embodiment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. (US Patent #5797123 hereinafter Chou) in view of Foote et al. (NPL document "Unconstrained keyword spotting using phone lattices with application to spoken document retrieval").

As per claim 1, Chou teaches:

forming a specification of a spoken event of interest to be located in unknown speech according to a plurality of sequences of subword units representing the spoken event of interest, wherein the forming includes identifying one or more instances of the spoken event of interest in a first set of audio signals and representing each identified instance of the spoken event of interest in the specification using at least one of the plurality of sequences of subword units; (Chou, column 4, lines 30-42 and column 6, lines 35-57, Fig. 2, the recognition is based on subword modeling which are compiled into networks (specification).)

Chou fails to teach, but Foote teaches:

accepting data representing the unknown speech in a second audio signal; (Foote, Page 218, ¶ 2, …*Most of the time-consuming speech recognition must be done off-line, as messages are added to the archive…* The data is input to a speech recognizer, which converts from audio to text, prior to archiving.)

locating putative instances of the spoken event of interest in the second audio signal using the specification of the spoken event of interest, wherein the locating includes identifying time locations of the second audio signal at which the spoken event of interest is likely to have occurred based on a comparison of the data representing the unknown speech with the specification of the spoken event of interest, query in the second speech data using the determined representation of the query.
(Foote, Page 208, Fig. 2 and ¶ 4, ...*These multiple hypotheses can be stored as a phone lattice which is a directed acyclic graph whose edges represent hypothesized phone occurrences and whose nodes represent the corresponding start and end times*… Section 3.5 on Pages 214 and 215 show the keyword spotting using phone lattices.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Foote with the Chou device to provide Foote with a multi-modal input modality for searching. It would have been obvious to do so because Petkovic et al. (US Patent #6185527) similarly provides a multimodal keyword spotting algorithm for information retrieval therefore it would have been well known in the art to do so. (column 6, lines 40-47)

As per claim 2, claim 1 is incorporated and Chou further teaches the method comprising:

wherein forming the specification of the spoken event of interest comprises applying a computer-implemented speech recognition algorithm to data representing the

first set of audio signals. (Chou, column 4, lines 30-42, …*subword-based speech recognition*…)

As per claim 3, claim 1 is incorporated and Chou further teaches the method comprising:

wherein the subword units include linguistic units. (Chou, column 4, lines 23-33, …*syllables, demisyllables, or phonemes*…)

As per claim 4, claim 2 is incorporated and Chou fails to specifically teach, but Foote teaches:

wherein locating the putative instances includes applying a computer-implemented word spotting algorithm configured using the specification of the spoken event of interest. (Foote, section 2 uses phone lattices (specification) for word spotting.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Foote with the Chou device to provide Foote with a multi-modal input modality for searching. It would have been obvious to do so because Petkovic et al. (US Patent #6185527) similarly provides a multimodal keyword spotting algorithm for information retrieval therefore it would have been well known in the art to do so. (column 6, lines 40-47)

As per claim 5, claim 4 is incorporated and Chou further teaches the method comprising:

selecting processing parameter values of the speech recognition algorithm for application to the data representing the first set of audio signals according to characteristics of the word spotting algorithm. (Chou, column 5, lines 27-49, *…the key-phrases may be defined so as to directly correspond with semantic slots in a semantic frame, such as, for example, a time and a place…. the top-down key-phrases recognized by the instant illustrative embodiment may easily be directly mapped into semantic representations*…, the key-phrase detector tags detected phrases with conceptual information for further consideration by the speech recognition algorithm.)

As per claim 6, claim 5 is incorporated and Chou further teaches the method comprising:

wherein the selecting of the processing parameter values of the speech recognition algorithm includes optimizing said parameters according to an accuracy of the word spotting algorithm. (Chou, column 5, lines 60-67, *…conventional minimum classification error (MCE) criterion, familiar to those skilled in the art*…)

As per claim 7, claim 5 is incorporated and Chou further teaches the method comprising:

wherein the selecting of the processing parameter values of the speech recognition algorithm includes selecting values for parameters including one or more of

an insertion factor, a recognition search beam width, a recognition grammar factor, and a number of recognition hypotheses. (Chou, column 6, lines 35-57, *…grammars may be manually derived directly from the task specification, or, alternatively, they may be generated automatically or semi-automatically (i.e., with human assistance) from a small corpus, using conventional training procedures familiar to those skilled in the art*…)

As per claim 8, claim 1 is incorporated and Chou further teaches the method comprising:

wherein the specification of the spoken event of interest defines a network of subword units. (Chou, column 6, lines 57-60, *…the key-phrase and filler-phrase grammars are compiled into networks*…, column 5, lines 50-67, *…key-phrase detector 11 comprises a subword-based speech recognizer adapted to recognize a set of key-phrases using a set of phrase sub-grammars*…)

As per claim 9, claim 8 is incorporated and Chou fails to specifically teach, but Foote teaches:

wherein the network of subword units is formed by multiple sequences of subword units that correspond to different paths through the network.
(Foote, Fig. 1, section 2, there are multiple phone paths through the lattice.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Foote with the Chou device to provide Foote with a multi-

modal input modality for searching. It would have been obvious to do so because Petkovic et al. (US Patent #6185527) similarly provides a multimodal keyword spotting algorithm for information retrieval therefore it would have been well known in the art to do so. (column 6, lines 40-47)

As per claim 10, claim 1 is incorporated and Chou further teaches the method comprising:

wherein forming the specification of the spoken event of interest includes determining an n-best list of recognition results. (Chou, column 7, lines 47-57, …*N-best key-phrase candidates in the order of their scores*…)

As per claim 11, claim 10 is incorporated and Chou fails to specifically teach, but Foote teaches:

wherein each sequence of subword units in the specification corresponds to a different one in the n-best list of recognition results. (Foote, Fig. 1, Pages 208 and 209, Sections 2 and 2.1 teach that the expectations of the phone sequences are maximized by having multiple hypothesis (paths). Those hypotheses are generated and ranked in an N-best list.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Foote with the Chou device to provide Foote with a multi-modal input modality for searching. It would have been obvious to do so because Petkovic et al. (US Patent #6185527) similarly provides a multimodal keyword spotting

algorithm for information retrieval therefore it would have been well known in the art to do so. (column 6, lines 40-47)

As per claim 12, claim 1 is incorporated and Chou further teaches the method comprising:

accepting first audio data representing utterances of the event of interest spoken by a user, and processing the first audio data to form a processed query. (Chou, column 3, lines 49-52, …*These key-phrases are then verified by assigning confidence measures thereto and comparing the confidence measures to a threshold, resulting in a set of verified key-phrase candidates*…)

As per claim 13, claim 1 is incorporated and Chou teaches:

accepting a selection by a user of portions of stored data from the first set of audio signals, and processing the portions of the stored data to form a processed query. (Chou, column 6, lines 35-65)

As per claim 14, claim 13 is incorporated and Chou teaches:

prior to accepting the selection by the user, processing the first set of audio signals according to a first computer-implemented speech recognition algorithm to produce the stored data. (Chou, column 6, lines 35-65)

As per claim 15, claim 14 is incorporated and Chou further teaches the method comprising:

the first speech recognition algorithm produces data related to presence of the subword units at different times in first set of audio signals. (Chou, column 5, lines 60-65, …*The subword model recognizer employed by key-phrase detector 11 uses lexicon 23 and subword models 22*…, For a full signal to be analyzed, there must be subword units for each definable subword unit meaning in the phrase, and the phrase would extend over a period of time, thus the subword units would as well. Furthermore, the speech Recognition algorithm would produce data from the subword units inherently, so it would also produce data related to presence of the subword units at different times in the audio signal.)

As per claim 16, claim 14 is incorporated and Chou teaches:

applying a second speech recognition algorithm to the processed query. (Chou, Fig .2, column 7, lines 15-39)

Claims 17 and 18 are the software and hardware representations of the method as claimed in claim 1. Claims 17 and 18 are rejected under the same principles as claim 1 for having identical limitations. Chou, column 12, lines 6-45, …*Illustrative embodiments of the present invention may comprise digital signal processor (DSP) hardware, read-only memory (ROM) for storing software performing the operations discussed above, and random access memory (RAM) for storing results. Very large*

scale integration (VLSI) hardware embodiments, as well as custom VLSI circuitry in combination with a general purpose processor or DSP circuit, may also be provided… Chou provides software and hardware illustrative embodiments which teach both claims 17 and 18.

As per claim 19, claim 18 is incorporated Chou fails to specifically teach, but Foote teaches:

wherein the word spotter is further configured to identify time locations of the second audio signal at which the spoken event of interest is likely to have occurred based on a comparison of the data representing the unknown speech with the specification of the spoken event of interest. (Foote, Page 208, Fig. 2 and ¶ 4, *...These multiple hypotheses can be stored as a phone lattice which is a directed acyclic graph whose edges represent hypothesized phone occurrences and whose nodes represent the corresponding start and end times…* Section 3.5 on Pages 214 and 215 show the keyword spotting using phone lattices.)

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to PTO-892, Notice of References Cited, for a listing of analogous art.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG A. BORSETTI whose telephone number is

(571)270-3885. The examiner can normally be reached on Monday - Thursday (8am - 5pm Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg A. Borsetti/
Examiner, Art Unit 2626

/Talivaldis Ivars Smits/
Primary Examiner, Art Unit 2626

4/7/2009